Small Business Innovation Research/Small Business Tech Transfer

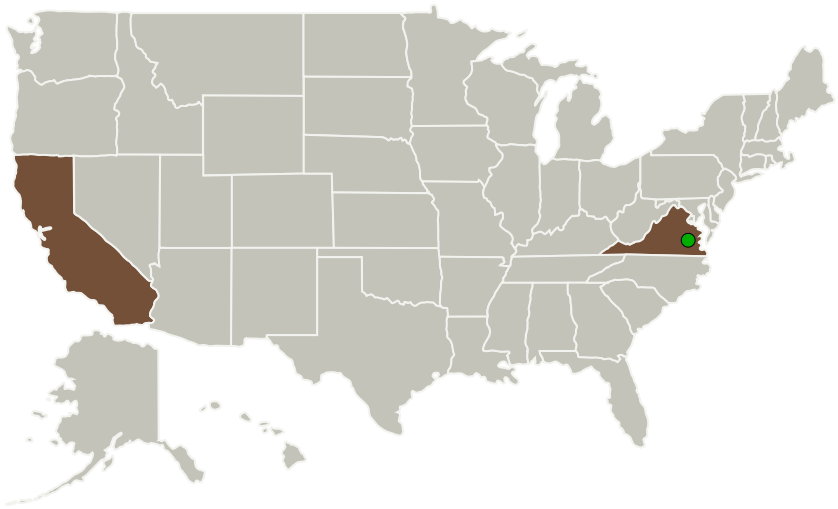
Algorithms for Structural Dynamics Based Fiber Optic Strain Gage Health Monitoring, Phase I

Completed Technology Project (2016 - 2016)

Project Introduction

San Diego Composites Inc. (SDC) will develop techniques for the reduction and analysis of fiber optic data with a focus on developing associations between frequency domain behavior and structure aging and damage. The algorithms would relate changes in frequency domain behavior to changes in material energy interaction due to quantified material property change. The algorithms will also be coupled with visualization techniques which can help show changes in structural behavior compared to the baseline. In addition, the proposed algorithms would couple with fiber optic strain gage research that SDC is performing on other SBIR programs with a focus on the development of an integrated fiber optic SHM system. SDC believes that maintaining a focus on the full-scale system helps to better shape and direct the work on each component part of the system.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
San Diego Composites, Inc.	Lead Organization	Industry	San Diego, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

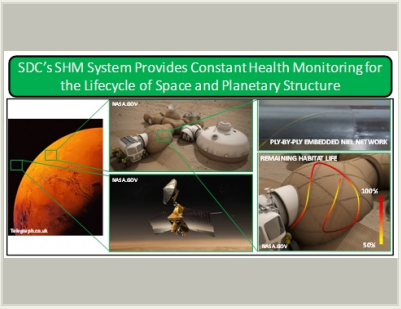


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Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

Algorithms for Structural Dynamics Based Fiber Optic Strain Gage Health Monitoring, Phase I

Completed Technology Project (2016 - 2016)

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2016: Project Start

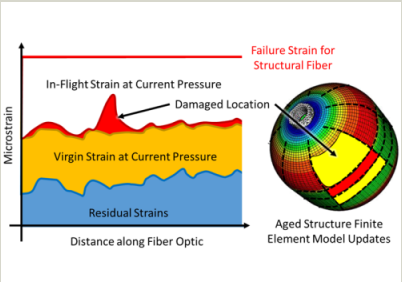
December 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140322)*

Images

Briefing Chart Image
Algorithms for Structural Dynamics Based Fiber Optic Strain Gage Health Monitoring, Phase I *(https://techport.nasa.gov/image/128754)*



Final Summary Chart Image
Algorithms for Structural Dynamics Based Fiber Optic Strain Gage Health Monitoring, Phase I Project Image *(https://techport.nasa.gov/image/128781)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
San Diego Composites, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

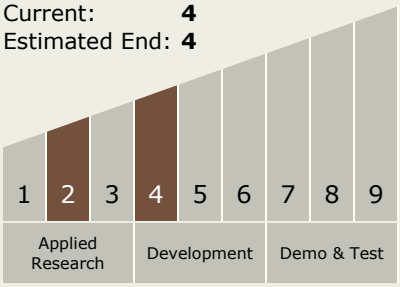
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Jeremy A Senne

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.3 Reliability and Sustainment

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System